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SENSORY DEPRIVATION  
PROGRESS REPORT III

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Jack A. Vernon  
Principal Investigator

Thomas E. McGill  
Research Assistant

⑪ 1 Jun 56

Harold Schiffman  
Research Assistant

⑫ 7

Department of Psychology  
Princeton University  
Princeton, New Jersey

⑨ Progress Rept. no. 3

Reporting Period: 1 Mar 1955 to 1 June 1956

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FOR THE CHIEF:

A large, stylized handwritten signature in black ink, appearing to read "Alexander N. Colini".

ALEXANDER N. COLINI  
Major, Infantry  
R&D Coordinator

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# SENSORY DEPRIVATION

## PROGRESS REPORT III

Reporting Period: 1 March 1956 to 1 June 1956

### ABSTRACT OF REPORT:

The data in the following report were collected on four subjects: S-3, S-4, S-5, and S-6. Each S was subjected to 72 hours of sensory deprivation, with the exception of S-3.

- A. The learning of the auditory adjective lists showed a fair amount of improvement some of which appears to be permanent. Fifteen-item lists were employed.
- B. Instructions were given with the purpose of minimizing rehearsal of the adjective lists during confinement. As the savings scores and reports of the subjects show, these instructions were effective.
- C. Decoy material for Ss to "work on" during confinement has been introduced. These data are not yet ready for presentation and will not appear until control data are available.
- D. Data for the Body Sway Test of Suggestibility are presented. A new project under the area of Suggestion is introduced.
- E. Data for the concept formation problems are presented. Conclusions about these data await control data.
- F. The nature and description of hallucinations are included. Two Ss report visual hallucinations, but there are no reports of auditory hallucinations.
- G. One subject (S-3) was unable to remain in confinement. A discussion of his interview is included.

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Respectfully submitted,

Jack A. Vernon  
Principal Investigator  
Department of Psychology  
Princeton University  
Princeton, New Jersey



The data included in this progress report have been collected from four (4) subjects: members 3, 4, 5, and 6. Subjects number 1 and 2 appeared in Progress Report II dated 1 March 1956 and are included here for comparative value.

PROJECT I-A-1 LEARNING: AUDITORY, MEANINGFUL.

Subjects 1 and 2 utilized a ten-item adjective list; however, it was decided that such a task may not be of sufficient difficulty to demonstrate maximum improvement in learning under confinement. To increase the difficulty of the learning material the lists were made fifteen-item lists, so that the data for subjects 3, 4, 5, and 6 are on the fifteen-item lists.

The learning material was presented via tape recording in the usual manner. Learning was by the method of anticipation with a two-second interstimulus interval. In all cases the criterion of learning was one errorless repetition. Testing was conducted according to Interval Schedule Nine (under Project I-A-1, see Progress Report I dated 1 December 1955).

	Test Number	Subject Number						Mean of S's 4,5, & 6
		1	2	3	4	5	6	
Pre-confinement	1	11	7	12	19	15	27	20.3
	2	8	6	--	12	10	11	11.0
	3	6	9	--	16	12	16	14.6
Confinement	4	11	7	--	14	7	10	10.0
	5	11	8	--	27	10	12	16.3
	6	6	6	--	18	11	9	12.6
	7	8	7	--	15	11	8	11.3
Post-confinement	8	9	6	--	16	x	6	11.0
	9	6	9	--	16	8	13	12.3

TABLE I: DATA FOR AUDITORY LEARNING

The data in Table I indicate that the greatest single improvement in learning occurs between tests number 1 and 2. According to Interval Schedule Nine test number 2 occurs after 24 hours of confinement. However, some of the improvement at this point must be attributed to the fact that the subjects

have "learned" how to learn. It will also be noted that at the end of the third post-confinement day all subjects are performing better than their original test. The most consistent maximum performance occurs on test number 4 which is administered after 48 hours of confinement.

In Progress Report II dated 1 March 1956 it was found that Ss apparently rehearsed the adjective lists a great deal during confinement. The savings scores indicated the greatest saving for the original and early lists since presumably there was a longer period for rehearsal. Subjects 3, 4, 5, and 6 had the specific instruction that the lists would not be called for at any later date. Then when the savings scores were determined at the end of the post-confinement testing the following data were obtained.

Test Number	Subject Number		
	4	5	6
1	63.2%	60.0%	81.5%
2	50.0%	60.0%	18.2%
3	56.3%	33.3%	56.3%
4	64.3%	29.0%	40.0%
5	55.6%	50.0%	41.7%
6	62.2%	54.6%	44.5%
7	66.3%	63.7%	12.5%
8	43.8%	--	16.7%
9	68.8%	37.5%	61.6%

TABLE II: PER CENT SAVINGS

The data in Table II indicate that the per cent of savings on all learning material is roughly equal, at least there is no longer the function which appeared in Progress Report II dated 1 March 1956. This finding would suggest that the instruction against practice of the lists during confinement had been carried out. This would further suggest that Ss in confinement will practice and rehearse any material which is available to them where there is an absence of counter instruction.

The "decoy" material mentioned in Progress Report II dated 1 March 1956 is now being employed but awaits control data for comparison. The "decoy" material will be an effort to see how Ss assimilate ambiguous material during confinement.

Subject number three did not complete the experiment. At the end of eleven (11) hours of confinement he requested to be released from confinement and excluded from the experiment.

PROJECT I-A-2 LEARNING: AUDITORY; CONCEPT FORMATION

Subject number	1	2	4	5	6
Trials to Solution	90	151*	67	67	14

PROJECT I-V-3 LEARNING: VISUAL; CONCEPT FORMATION

Subject number	1	2	4	5	6
Trials to Solution	19	23	11	20	30

PROJECT I-T-1 LEARNING: TACTUAL; CONCEPT FORMATION

Subject number	1	2	4	5	6
Trials to Solution	12	9	18	24	12

The measures on the concept formation problems (auditory, visual, and tactual) are determined only at the end of the confinement period and thus the meaning of the above data await the control data. It will be noticed, however, in all save one (Subject 6) the most difficult task is the auditory concept problem. This is somewhat surprising since it is always given after the visual and tactual problems so that performance skill acquired on the first problems should generalize to aid the solution of the auditory problem. It did so in the case of S-6.

PROJECT I-C-1 LEARNING: CONDITIONING

The method and procedure followed in this subproject are to be found in Progress Report II dated 1 March 1956.

Subject number	3	4	5	6
Trials to Conditioning	17	21	10	6
Trials to Extinction	--	43	23	17

The meaning of these data await comparison with control group data.

\* Unsolved



PROJECT II-S-1 PERSONALITY: SUGGESTION; BODY SWAY

Suggestion as measured by body sway revealed the following data:

		Subject Number			
		3	4	5	6
Pre-confinement	Normal	32.5mm	25 mm	42.5mm	15.5mm
	"Suggested"	34 mm	29 mm	46 mm	33.5mm
Immediate Post-confinement	Normal	--	30 mm	54 mm	37 mm
	"Suggested"	--	24 mm	60.5mm	55.3mm
Delayed* Post-confinement	Normal	--	24 mm	40 mm	26.5mm
	"Suggested"	--	22.5mm	38 mm	24 mm

\*Delayed post-confinement means 48 hours after release from confinement.

The Figure Suggestion Test (F.S.T.) is described in detail in Progress Report I dated 1 December 1955. It was employed on Subjects 4, 5, and 6:

S-4: Detected the gap in the circle at position three. He closed the fourth circle from the end of the series but opened the remaining three.

S-5: Detected the gap in the third position. Closed the last two presentations.

S-6: Detected the gap at the seventh position, then continued to see them as open for remainder of the series. S-6 also represented many of the other figures as opened when actually they are not.

PROJECT II-S-4 PERSONALITY: SUGGESTION; HYPNOSIS

A new subproject is herein added to the overall plan. This project will attempt to utilize hypnosis in two ways. In the first place, as suggested by Colonel Peterson of the Office of the Surgeon General of the Army, the hypnotizability of a subject is probably positively related to his occurrence of hallucinations. It is hypothesized that only subjects who can be hypnotized will hallucinate under conditions of sensory deprivation. It is further proposed that individuals who normally resist hypnosis would be less resistant after sensory deprivation.

MISCELLANEOUS COMMENTS:

A. Record of Subjects' Weight

	Subject Number		
	4	5	6
Pre-confinement	182 lbs.	160 lbs.	177 lbs.
Immediate post-confinement	178 lbs.	157 lbs.	170 lbs.
Delayed post-confinement	179 lbs.	159 lbs.	175 lbs.

The food consumed by Ss is the same as reported in Progress Report II dated 1 March 1956.

B. HALLUCINATIONS:

S-4 reported the most elaborate and most frequent visual hallucinations to date. He described many figures such as animals and humans. He frequently saw meaningful non-living items such as airplanes, etc.

S-5 reported an occasional scene such as clouds in the sky and, in general, pleasant but not highly structured affairs.

S-6 reported no visual hallucinations.

None of the above Ss experienced any auditory hallucinations.

With the exception of S-3 all Ss of this report period indicate that the confinement is not as "bad" as they had expected. The accrued anticipation reported in Progress Report II dated 1 March 1956 seemed to have been eliminated by the new instructions. Ss are instructed to make available a block of six consecutive days of which some will be confinement days and some will be post-testing days.

C. VOLUNTARY WITHDRAWAL FROM CONFINEMENT:

S-3 at the end of eleven (11) hours of confinement stated that it was necessary for him to withdraw from the experiment.

S-3, in post-confinement interview, reported that he had had a growing anxiety about the confinement which he had fought for about seven hours (his estimate). He found it next to impossible to explain the nature of the anxiety except that he was afraid he was losing his sight. Upon being released from the confinement cell he displayed nothing but relief. He was not hysterical, he was no longer anxious or tense, he could discuss the matter freely and coolly, he displayed no undesirable after-effects, and follow up on him continues to reveal no undesirable after-effects of any kind. He indicated that he would have "come out" of confinement earlier except for fear that he would wreck our experiment and that his wife would think him

a coward. A longer series of post-confinement testing, including hypnosis, has been planned for this subject.

D. HEALTH CLEARANCE:

All Ss now receive a medical clearance from Dr. W. York, Director of the Infirmary of Princeton University.

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HEADQUARTERS, 1000  
P. O. BOX 2000  
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